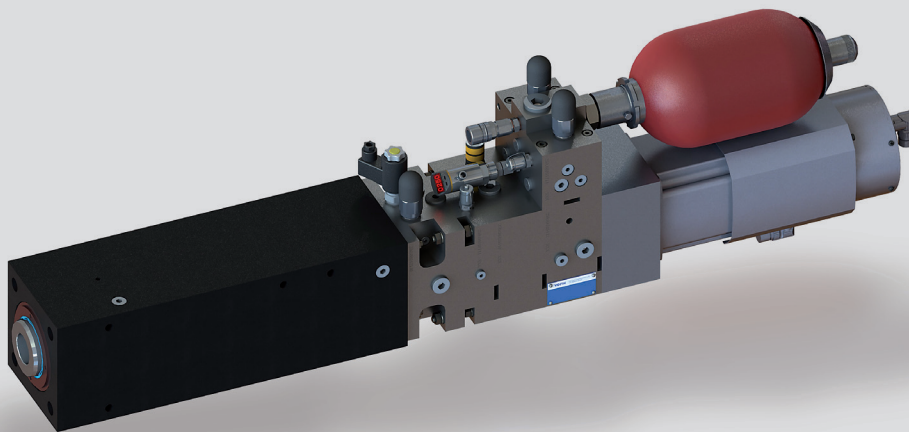


Servo Drive CLDP



Design and Function

CLDP (Closed Loop Differential Pump) is a hydraulic linear axis suitable for all applications with high density and high dynamics. Consisting of a servo motor, internal gear pump and a directly linked hydraulic cylinder, CLDP is a compact and closed system.

The integrated servo pump is matched to the surface area ratio of the cylinder. Speed and direction of movement is controlled without any directional or proportional valves. Because of the closed loop system, CLDP does not need a tank or external power pack. The necessary volume compensator is integrated.

Position control and pressure/force control is possible. The pressure transducer is integrated into the system (option). An integrated position feedback sensor is available. Key features of CLDP are very high energy efficiency and virtually wearless operation. Hydraulic's intrinsically good overload protection is combined with long life time.

Technical Data

ambient temperature	-5°C to +40°C
mounting position	any
working force	up to 500 kN
stroke length	50, 100, 200, 300, 400 mm
linear feedback system (option)	absolute encoder
position accuracy	0.01 mm
pressure accuracy	0.5% FS
repeatability	0.01 mm
IP rating	IP54 / IP64
control	position and/or pressure control
Service interval	3 years or 20,000 operating hours

Scope of Delivery

Basic version:

- complete drive unit:
 - motor, pump, cylinder, compensation tank, valves, pressure switch
 - oil filling with high performance fluid PF-700
 - drift protection (not a safety component)

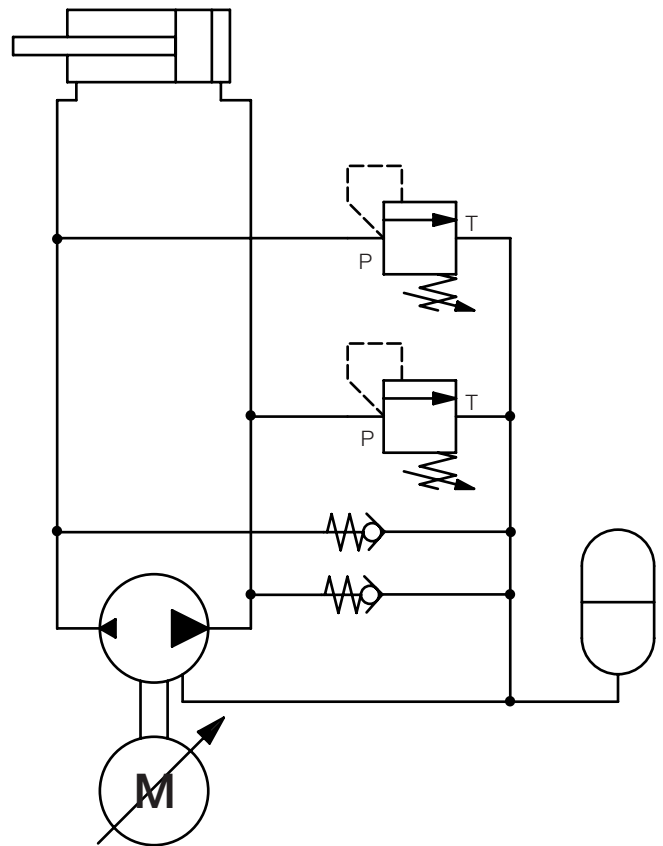
Options:

- pressure transducer
- servo converter with safety relay and interface cards (e.g. analog, CANopen, Ethernet, ...)
- line filter, mains line choke, brake resistor
- motor cable, encoder cable
- parameterization software
- start-up on-site
- integrated position feedback sensor (absolute)

Applications

- bending machines
- cutting machines
- forming machines
- presses
- special machines
- general replacement of spindle drives with servo motor
- material handling
- testing machines (laboratory)
- food industry

System Drawing CLDP

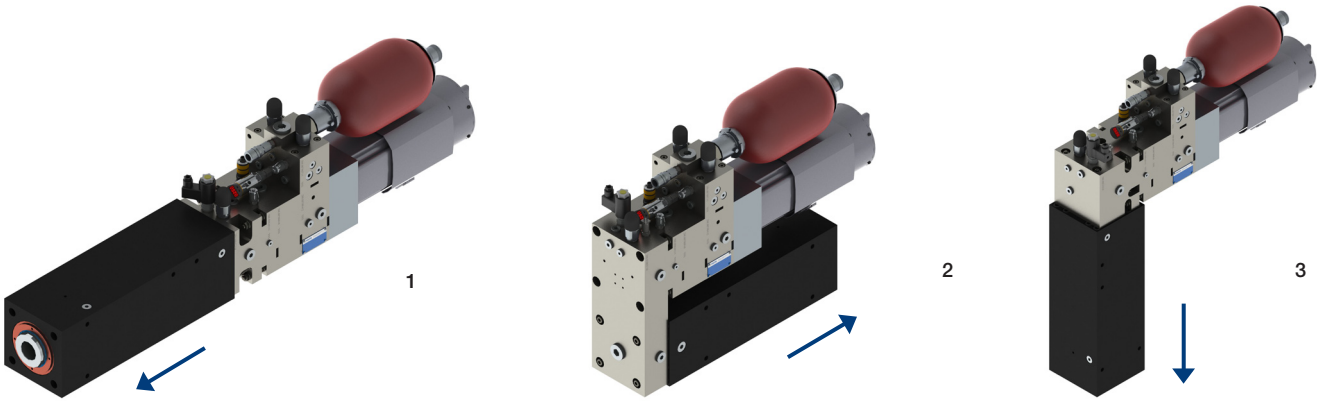


Data Standard Sizes

	CLDP 10	CLDP 20	CLDP 40
force [kN]	speed [mm/s]	speed [mm/s]	speed [mm/s]
25	430	550	640
50	275	550	640
75	175	350	640
100	105	215	400
125	105	215	400
150	70	140	255
175	70	140	255
200	70	140	255
225	-	95	175
250	-	95	175
275	-	95	175
300	-	95	175
350	-	-	130
400	-	-	130
450	-	-	100
500	-	-	100

additional data on request

Design

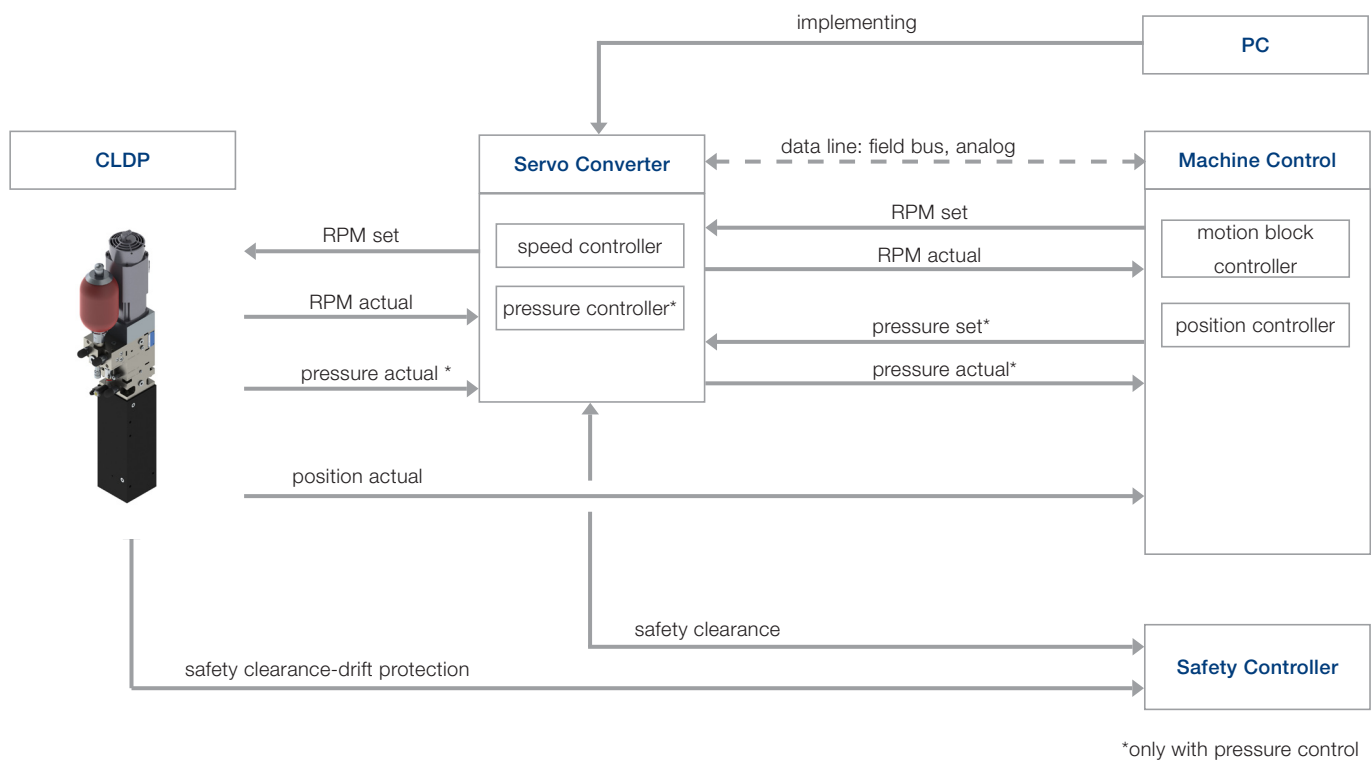


- 1 linear
- 2 parallel (option)
- 3 orthogonal (option)

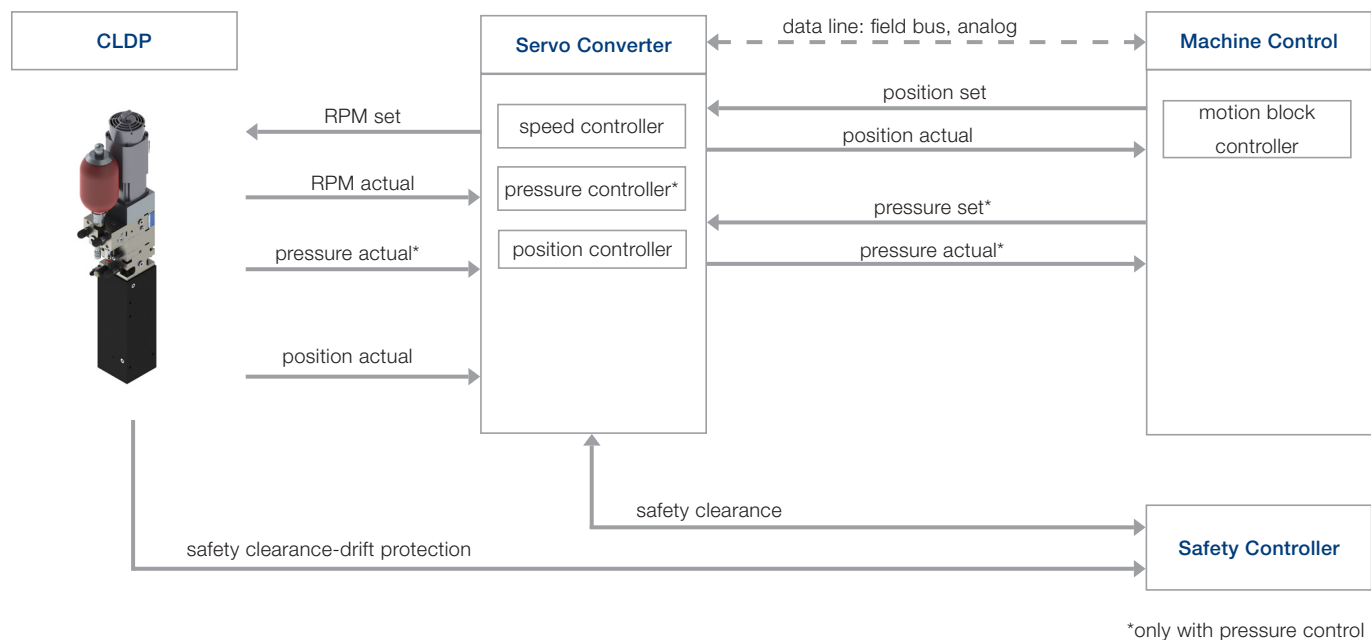
Characteristics

Characteristics CLDP	Advantages	Benefits
• closed oil loop	• decentralized unit • minimized throttle losses	+ dynamic processes realizable + Stand-alone operation (no additional pipe work or hoses required) + energy efficient + optimized thermal properties
• servo pump, matched to cylinder surface area ratio	• small compensation volume • minimum throttle losses • valve technique not required • very good overload protection	+ small space requirement + smaller construction units, small weight + optimized for maximum energy efficiency + simple design, simple start-up
• no directional / proportional valves • active control of the servo pump	• high energy efficiency with high hydraulic efficiency	+ reduction of energy costs up to 50% + less CO2 emissions
• modular design • reduced parts • compact drive	• simple yet versatile drive system • small size • simple design • no power unit necessary • no filter system necessary	+ simple system integration + reduced costs for start-up, training and maintenance + high application flexibility + reduced weight + reduced space requirement + low noise level
• force / speed / position control by the servo pump	• valve technique not required • optimal adjustment of force and speed to the process	+ high flexibility

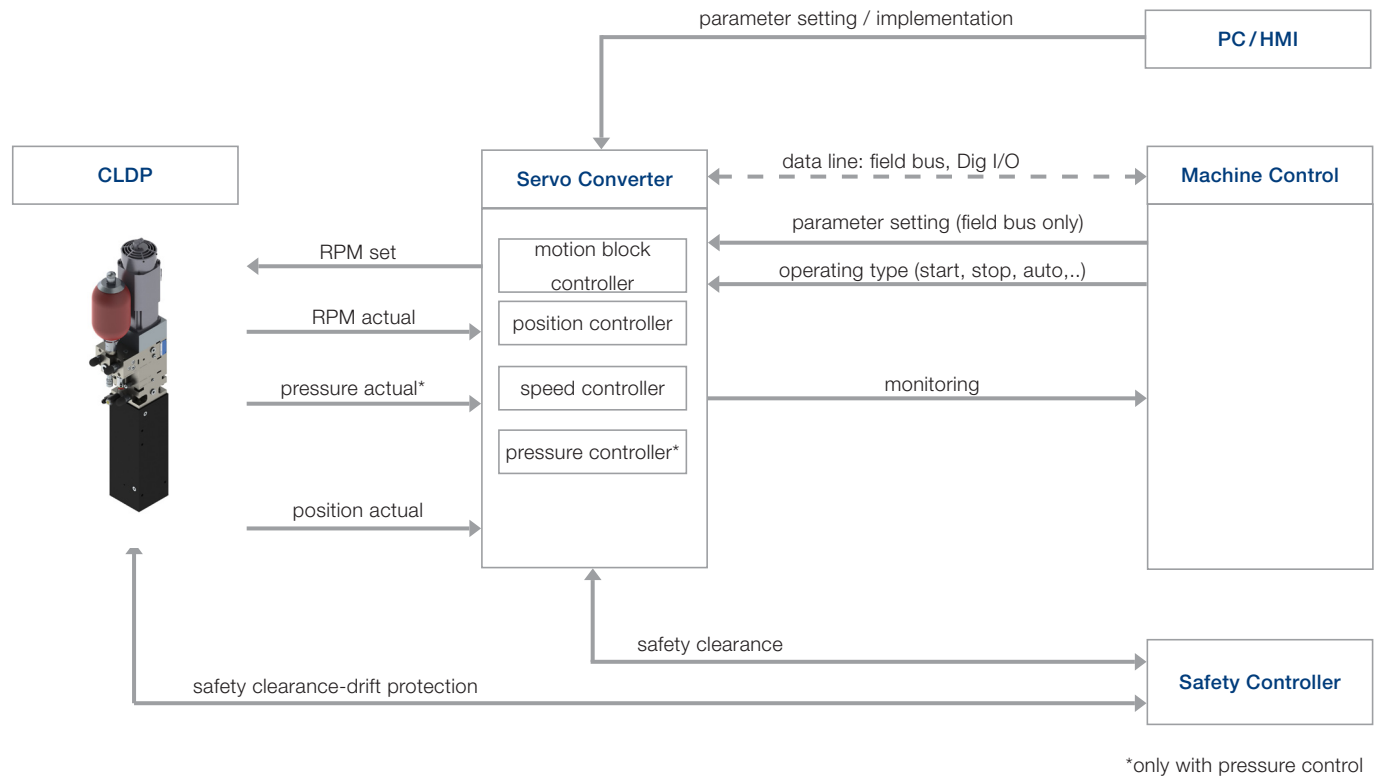
Control Principle: Speed and Pressure Control Integrated in the Servo Converter

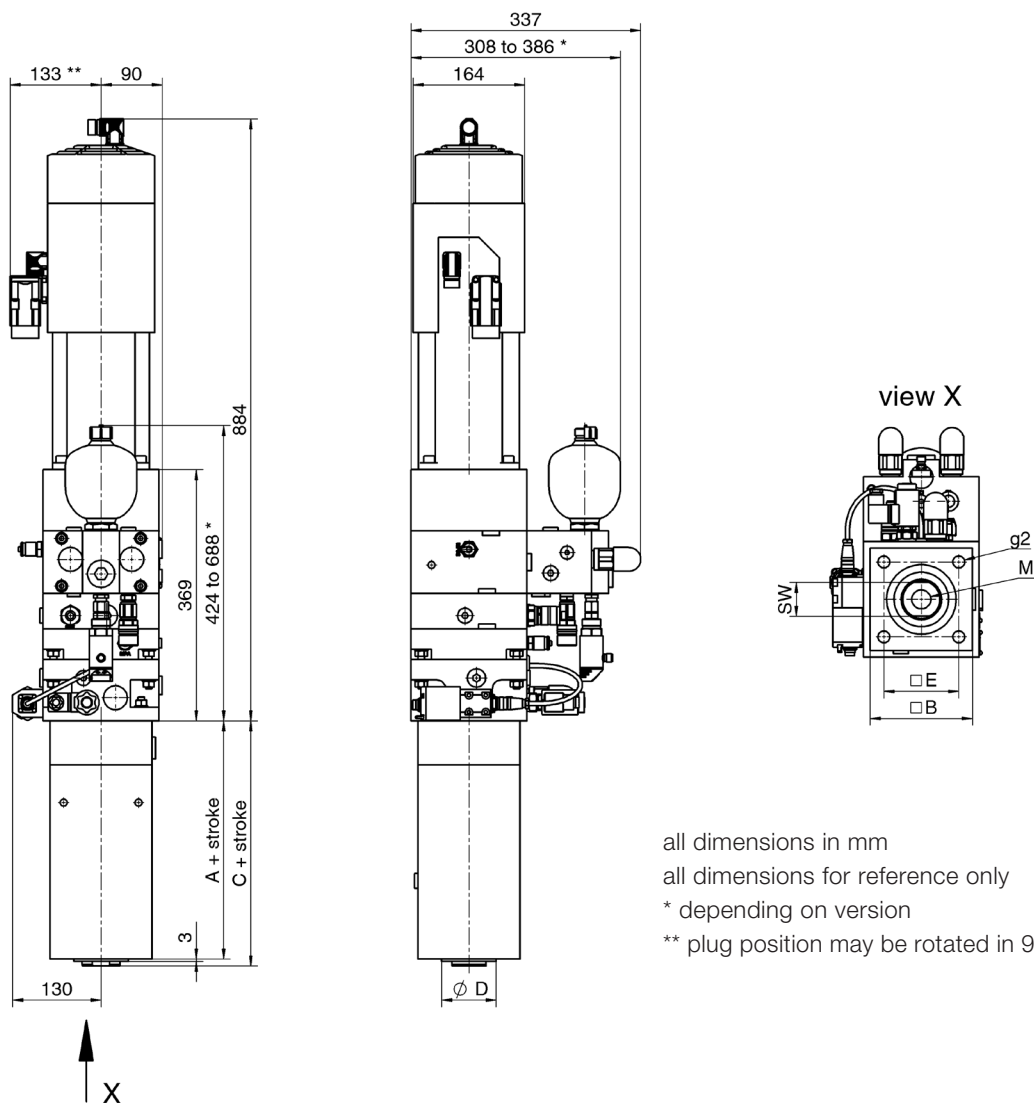


Control Principle: Speed, Position and Pressure Controller Integrated in the Servo Converter



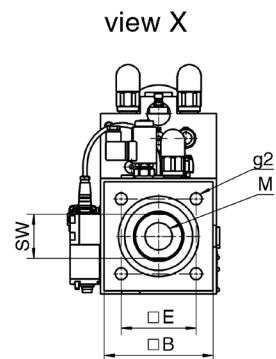
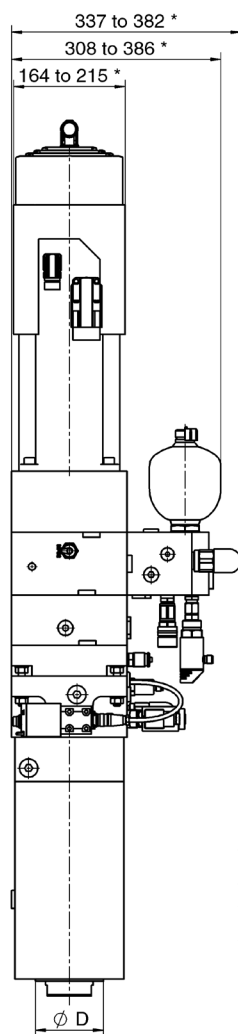
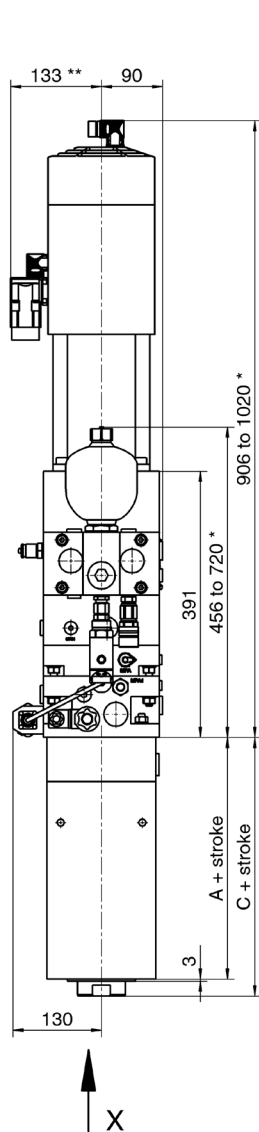
Control Principle: Motion Block Control Integrated in the Servo Converter





all dimensions in mm
 all dimensions for reference only
 * depending on version
 ** plug position may be rotated in 90° steps

force [kN]	Ø piston	Ø D	A	C	M	g2	B	E	SW
25	40	40f7	235	255	M16x1	4x M20	150	110	25
50	50	50f7	235	255	M20x1,5	4x M20	150	110	30
75	63	63f7	235	255	M30x2	4x M20	150	110	41
125	80	80f7	250	270	M36x2	4x M20	150	110	50
200	100	100f7	255	280	M42x2	4x M20	160	110	65
300	120	120f7	265	290	M48x2	4x M24	180	130	75



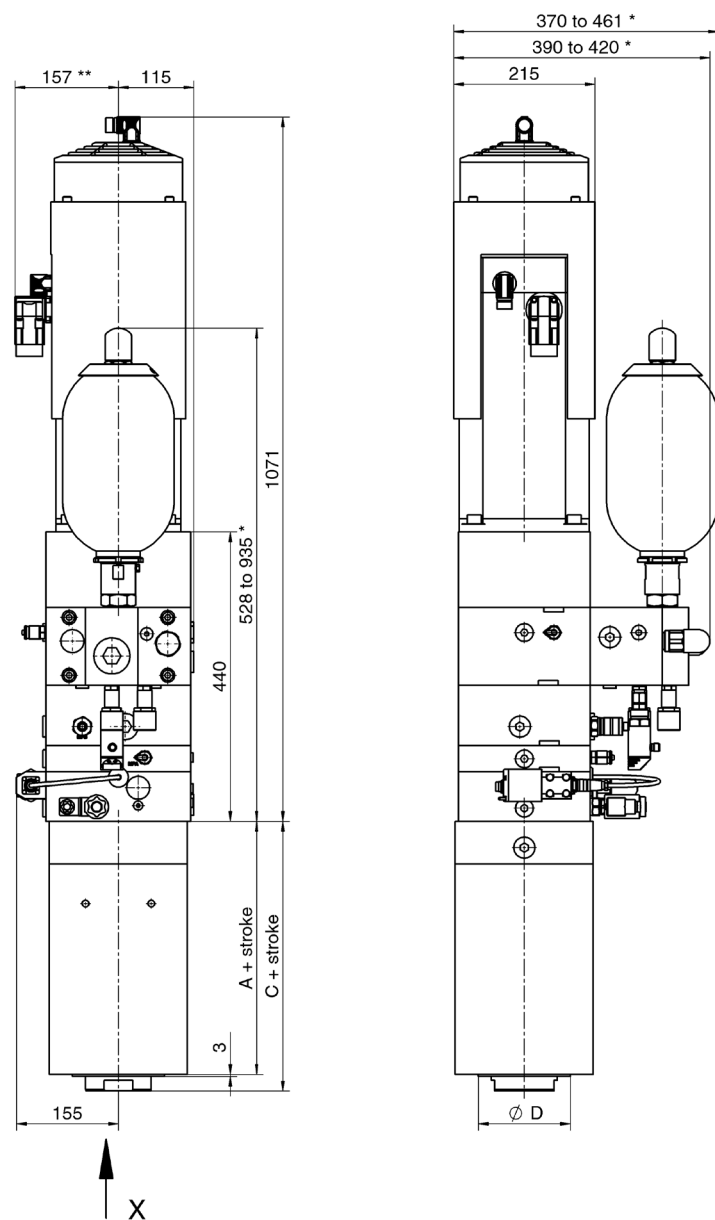
all dimensions in mm

all dimensions for reference only

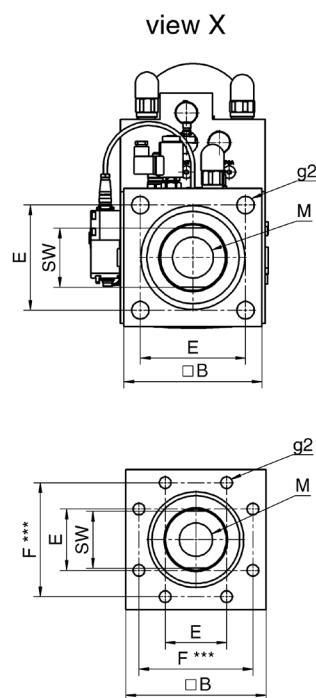
* depending on version

** plug position may be rotated in 90° steps

force [kN]	Ø piston	Ø D	A	C	M	g2	B	E	SW
50	50	50f7	235	255	M20x1,5	4x M20	150	110	30
75	63	63f7	235	255	M30x2	4x M20	150	110	41
125	80	80f7	250	270	M36x2	4x M20	150	110	50
200	100	100f7	255	280	M42x2	4x M20	160	110	65
300	120	120f7	265	290	M48x2	4x M24	180	130	75
400	140	140f7	285	310	M64x2	4xM30	210	160	90



all dimensions in mm
all dimensions for reference only
* depending on version
** plug position may be rotated in 90° steps



force [kN]	Ø piston	Ø D	A	C	M	g2	B	E	F	SW
75	63	63f7	235	255	M30x2	4x M20	150	110	-	41
125	80	80f7	250	270	M36x2	4x M20	150	110	-	50
200	100	100f7	255	280	M42x2	4x M20	160	110	-	65
300	120	120f7	265	290	M48x2	4x M24	180	130	-	75
400	140	140f7	285	310	M64x2	4x M30	210	160	-	90
500	160	160f7	305	330	M64x2	4x M30	240	180	-	100
600	180	180f7	325	350	M80x2	8xM27	280	120	230	115
750	200	200f7	345	370	M80x2	8xM30	320	140	260	130

Performance Fluid PF-700 was developed especially for all power transmission systems with special requirements on tribology, temperature, oxidation and shearing stability. The result is a very high application period at minimum degradation.

- very low frictional losses, therefore significantly enhanced efficiency of power transmission
- energy saving
- high viscosity index
- outstanding wear protection characteristics
- compatible with commonly used sealing materials

For the servo drive CLDP, exclusive use of PF-700 is mandatory.

Further data: 25000864510-TED-ENX- and 25000864610-DSH-ENX-.

CLDP L 20 100M U 2-100/070-010 B U 10

00 = without drift protection, without pressure transducer
 01 = without drift protection, with pressure transducer
 11 = with drift protection, with pressure transducer
 10 = with drift protection, without pressure transducer

position of electrical connection

(as seen viewing motor front, tank on top)

R = right; L = left; U = down

outlet motor connection box

L = left *; R = right *; P = pump side *;

M = motor side *

*only with motor connection box

electrical connection

A = motor connection box; B = connector

cylinder

piston diameter; rod diameter; stroke

motor rotation speed

2 = 2000 min⁻¹; 3 = 3000 min⁻¹

motor cooling

O = surface forced cooling; U = without forced cooling

motor

070M; 070L; 100M; 100L

size

10; 20; 40

design

L = linear; P = parallel; O = orthogonal (right angle)

servo drive CLDP

material number

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